the occipital to the angle of the mouth (as in *C. trimaculatus*); a black horseshoe-like collar, with the convexity directed forward; a black line runs from the collar to the tip of the tail, along the vertebral series of scales; a series of roundish black spots, indistinctly edged with white, along each side of the anterior part of the trunk. Tail coloured like the body, without black rings. Upper labials seven.

Thirty inches long. Two specimens, from the Fort Pitt Collection, are in the British Museum. They are said to be from British India, locality unknown.

P.S.—*Elapomorphus mexicanus* and *Hydrophobus semifasciatus* (Pl. IX. figs. 1 & 6) are represented twice their natural size.

Add to the first list *Tretanorhinus variabilis*, from Cuba, which has lately been received through the kindness of Prof. Peters. This raises the total number of species in the British Museum to 612, which are represented by more than 4100 specimens. According to a statement of Prof. A. Duméril (Arch. Mus. ix. 1857), the Paris Collection contains 523 species.

XVI.—*An Account of two remarkable Crustacea of the Order* Cladocera. By W. Lilljeborg[*].

[Plate VIII.]

The two *Cladocera* which I am about to describe are of so remarkable a structure, that I have not thought myself justified in delaying their description, as I had previously intended, until I had an opportunity of issuing a continuation of my treatise on the *Cladocera*, *Ostracoda*, and *Copepoda*. Both are found in our fresh waters, and are widely disseminated. Baron G. C. Cederström, to whom, in this branch of knowledge, we are so greatly indebted, first drew my attention to the one species, and also transmitted to me specimens of the other. The former differs so widely from all *Cladocera* hitherto known as to form a separate family; but the latter belongs to the Polyphemidæ, although in some respects it strikingly deviates from the other members of that family.

That the former has not previously been noticed may be ascribed to the circumstance that it is so transparent as to be seen only with difficulty, although it is larger than any other Cladocera,—on which account it may well be contained in a glass of water without being seen, even with the aid of a lens. The other seems to be very rare, and probably has its abode in deep water.

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[*] From 'Öfversigt af Kong. Vet. Akad. Förhandl.' Read May 16, 1860.

*Leptodora** *hyalina,* nov. gen. et sp.

Corpus elongatum, teretiusculum, testa vel cute tenuissima, hyalina, in segmenta 6–7 divisa obtectum. Caput longum, conico-obtusatum, rostro carens, supra postice gibbum et area ephippiiformi punctata præditum, et altius quam thorax positum, ita ut postice deorsum inflexum et sub angulo fere recto cum thorace conjunctum sit. Margo anterior thoracis, ubi pedes sunt adfixi, una cum margine inferiore capitis angulum fere rectum format. Ad marginem posteriorem et superiorem segmenti thoracici postremi apud specimina adulta feminina adest saccus magnus oviferus, vel "matrix," quæ exit ex apertura inter hoc segmentum et segmentum abdominale primum †. Abdomen longum, segmentis quinque, ramis caudalibus exceptis, compositum. Cauda postice divisa et ramos duos supra aculeatos gerens. Corpus totum valde hyalinum, et aqua vix obscurius est, qua de caussa hoc animal ceteris *Cladoceris* pulchritudine excellit, eo magis quia oculus nitore insigni præstat.

Antennæ primi paris breves, ad apicem papilliferæ, in latere inferiore capitis prope oculum insitæ.

Antennæ secundi paris, sive remi, maximæ, trunco magnitudine insolita insigni, ramorum quadriarticulatorum alter 28, alter 29 setas ciliatas gerens. Apud specimina juniora una vel altera seta deest.

Mandibulæ apicem versus attenuatæ, apice unguiformi et prope eum denticulis duobus et aculeo mobili præditæ. Maxillæ desunt.

Pedes elongati, prehensiles, ut maxillæ servientes minimeque branchiales, setis armati, et plerumque quadriarticulati; sex paria, quorum par primum longissimum. Secundum ad quartum par fere æqualia, anteriora tantummodo sequentibus paulo longiora. Quintum par antecedentibus multo brevius, et sextum par omnium brevissimum et tantum articulis duobus constans.

Labrum magnum et crassum, valde retractile et os obtegens. Labium ramis corneis corroboratum. Œsophagus tenuissimus et longissimus, ad extremitatem ventricularem claustro cardiaco instructus, semperque motus peristalticos præbens. Ventriculus in extremitate posteriore corporis (in segmento antepenultimo et penultimo) situs, ab œsophago distinctus et quam hic multo crassior, parietibus sat crassis præditus, et fere ad anum sphincteribus constrictum porrectus.

Cor perspicuum, in parte dorsali thoracis situm, suturis et rimis, quarum posteriores sese perspicue pro sanguine aperientes, delineatum, et antice in vas sanguiferum productum.

Ovaria duo, in segmento primo et secundo vel etiam tertio abdominis sita, in cellulas septis pro ovis disjunctas dispertita. Ova in serie simplici, saltem interdum, posita sunt, et eorum latitudo 0·06 mill. Genus masculinum minime vidi, neque feminas pullos in matrice

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* From λεπτὸς, tenuis, and δορὰ, pellis.

† In sacco ovifero ova tantummodo tria vidi.

portantes. Apud specimina juniora matricem minimam observavimus. Ova in matrice semper serie simplici posita fuerunt.

Oculus magnus, ex magno numero oculorum simplicium compositus, partem anteriorem capitis explens, pigmento fusco-nigro. Pone oculum videmus ganglia cephalica coalita, alterum pone alterum positum, anteriore naturam ganglii ophthalmici præbente. E parte posteriore exit nervus, qui postea in duos nervos, qui œsophagum ad latera circumdant, divisus est. Interdum hic nervus ab initio est divisus.

Motus saltatorius, non celeritate insignis. Victus ex animalculis constat. Pullos *Cyclopum* prehensos pedibus *Leptodoræ* vidi.

Longitudo corporis cum ramis caudalibus circ. 8 millim.

From the long cylindrical form of the body, the numerous natatory bristles on the second pair of antennæ, and more especially the long and narrow œsophagus, together with the distinct ventricles, situated in the hinder extremity of the body, and from the situation of the ovarium, *Leptodora* is distinguished from all other Cladocera. With the Polyphemidæ it agrees in not having the body covered with an arched shield, but differs in its long cylindrical form. This family appears, however, to come the nearest to it, on account of the absence of the arched shield, the form of the mandibles, and the absence of a branchial appendage to the legs; and, altogether, it would seem that the here-described *Bythotrephes*, Leydig, by reason of its long legs and long-extended abdomen, the most nearly resembles it. But the *Sida* or *Daphnella brachyura* resembles it most in the form of the head. I have not found in any Cladocer that the digestive canal bore any sign of transition to the form here described; but in the Rotatoria we sometimes find a similar long and narrow œsophagus, with a distinct stomach. The ovaria also bore some resemblance to those in the Rotatoria.

In younger individuals (Pl. VIII. fig. 2) the abdomen had only four segments besides the caudal branches, while in older ones there were five.

The *Leptodora* moves with a long horizontal spring, but is not remarkably quick. Its extraordinary transparency makes it, while living, a particularly interesting object for observation. The first time I took it, and placed the vessel in which it was kept in the sunshine, I was unable to see the animal itself, but its shadow only, when it moved.

Baron Cederström took it in a lake at Bolltorp, in East Gothland; also in the Ring Lake, in Scania. I have myself taken it in the last-mentioned place; also in the Mälar Lake, where it is pretty numerous. But it is only found in pure water, and at a long distance from the land.

Bythotrephes longimanus, Leydig.

Naturgeschichte der Daphniden, p. 244. figs. 73–75.

Corporis forma *Polyphemo* sat similis, abdomine vero magis evoluto et porrecto, ad apicem setam maximam et longissimam gerente, et pedum pari primo maximo. Caput omnino capiti *Polyphemi* simile, paulo deflexum. Organum adfigendi (Leuckart) deest. Matrix sive saccus oviferus maximus, supra thoracem situs, et antice vergens. Abdomen pone matricem porrectum et segmentis tribus compositum. Segmentum ultimum setam caudalem continuam maximam, corpore pluries longiorem gerit. Apud feminam adultam hæc seta duas dilatationes annulares testæ biaculeatas præbet. Infra basin hujus setæ est fissura analis, et ad fissuræ latera aculeus validus.

Antennæ primi paris minutæ, processui communi adfixæ et papillas tres vel quatuor portantes.

Antennæ secundi paris magnæ, birames, ramo uno tribus, et altero quatuor segmentis, quorum primo brevissimo, composito. Ramus trisegmentatus setis ciliatis septem, quarum segmentum primum et secundum unam, et tertium quinque setas gerit. Ramus quadrisegmentatus setis ciliatis octo, quarum segmentum secundum unam, tertium duas, et quartum quinque setas gerit.

Mandibulæ 0·045 mill. longæ, ad apicem inferiorem bipartitæ, parte una aculeis mobilibus vel setis, et altera parte dentibus vel processibus acuminatis tribus, quorum uno minimo, armata.

Maxillæ duæ, minutæ, lobuliformes, pone os et mandibulas positæ, antice vergentes, parte interiore crassiore et aculeis instructa, et parte exteriore apice setifero.

Pedum quatuor paria, omnia prehensilia, ad apicem setis aculeatis armata minimeque branchifera. Pedes primi paris maximi, et ceteris multo longiores, segmentis quatuor compositi, setisque majoribus apicalibus quatuor instructi. Hæ setæ ad marginem posteriorem aculeos mobiles portant. Testa segmenti basalis ad marginem inferiorem et exteriorem processum parvum emittit. Segmentum secundum intus processum acutum et postice setas sex vel septem, quarum duas ad apicem inferiorem, gerit, et segmentum tertium duabus setis posterioribus instructum est. Pedes secundi et tertii paris, qui etiam segmentis quatuor compositi sunt, ad latus interius segmenti secundi appendicem aculeis apicalibus instructam habent, et quatuor setas majores apicales portant. Pedes quarti paris brevissimi, tantum biarticulati, segmento ultimo setis pluribus, saltem 6 vel 7, quarum una in processu brevissimo posita, instructo.

Labrum magnum, processibus duobus, quorum posterior latior et magis obtusus et ad apicem setosus est. Tubus intestinalis simplex et simili modo atque apud *Polyphemum* formatus.

Cor magnum et fere quadrangulum.

Motus motui *Polyphemi* similis, sed ob setam magnam caudalem, quæ impedimento est, minus velox.

Longitudo corporis ad basin setæ caudalis circ. 1–1¾ millim.

With regard to its structure, *Bythotrephes* has the greatest affinity to the genera *Polyphemus, Podon,* and *Evadne,* and evidently belongs to the same group. From the first two, which it most nearly resembles, it differs in its more perfect abdomen and long caudal bristle. From *Evadne* it deviates even more widely.

It appears to be very rare. Baron Cederström took a few specimens in the lakes in Jemtland and in Wombs Lake, in Scania, which were communicated to me; and I have myself taken a solitary specimen in the Mälar Lake, near Flottsund. Of this I noticed that it remained at the bottom of the vessel in which it was contained, in consequence of the long caudal bristle being a hindrance to it in swimming. It is therefore probable that, in its free state, it abides less in proximity to the surface of the water than the *Polyphemus,* and that it is from this cause that it is so seldom obtained. F. Leydig found it in the stomach of *Coregonus Wartmanni,* taken in the Lake of Constance, in Switzerland. He did not succeed in procuring one alive, whence he supposes that it dwells near the bottom.

EXPLANATION OF PLATE VIII.

Fig. 1. *Leptodora hyalina*; a full-grown female, seen from above and somewhat from the side: *b,* the antennæ of the second pair; *k,* matrix.

Fig. 2. A younger female, seen from the side: *a,* an antenna of the first pair; *b,* base of an antenna of the second pair; *f,* gullet; *g,* stomach; *h,* heart; *i,* ovaria; *k,* matrix; *l,* head-ganglia.

Fig. 3. One antenna of the first pair.

Fig. 4. Both branches of one antenna of the second pair.

Fig. 5. One mandible seen under a glass cover.

Fig. 6. Upper lip lifted up (*d*), under lip (*e*), and both mandibles in their natural position.

Fig. 7. Ovarium.

Fig. 8. The front of the body, seen from above, to show the muscles passing to the second pair of antennæ: *a,* antennæ of the first pair; *f,* gullet; *h,* heart; *m,* the nerve-cord, passing from the back ganglion of the head, which behind separates and encompasses the gullet.

Fig. 9. *Bythotrephes longimanus*; a full-grown female: *a,* antennæ of the first pair: *b,* antenna of the second pair; *c,* a mandible; *d,* legs; *e,* upper lip; *k,* matrix.

Fig. 10. A younger specimen, 1 millim. long; sex unknown: *f,* heart.

Fig. 11. A leg of the third pair, seen from the inner side: *a,* with an appendage provided with prickles or points.